New Printing UI – Better Printing for OpenOffice.org

Abstract

OpenOffice.org 3.3 provides a new printing dialog that gives us better performance, more ease of use, and overall more user satisfaction. New features like the instant preview in a print dialog as well as unified N-Up printing for all applications will bring OpenOffice.org's print experience more up to current standards. Additionally, system integration can benefit by making use of native print dialogs - now and in the future.

This presentation will shed some light on where this feature originated from and how it was developed in cooperation by employees of the main sponsor and community members. Therefore we will take a look at the research phase, early design sketches, and the final UI design. Moreover, some ideas to further improve printing are presented, too. Finally, we'll “disclose” why the mysterious name “printerpullpages” has been used as the working title.

Details: http://wiki.services.openoffice.org/wiki/printerpullpages

New Printing UI

Better Printing for OpenOffice.org

Central European University

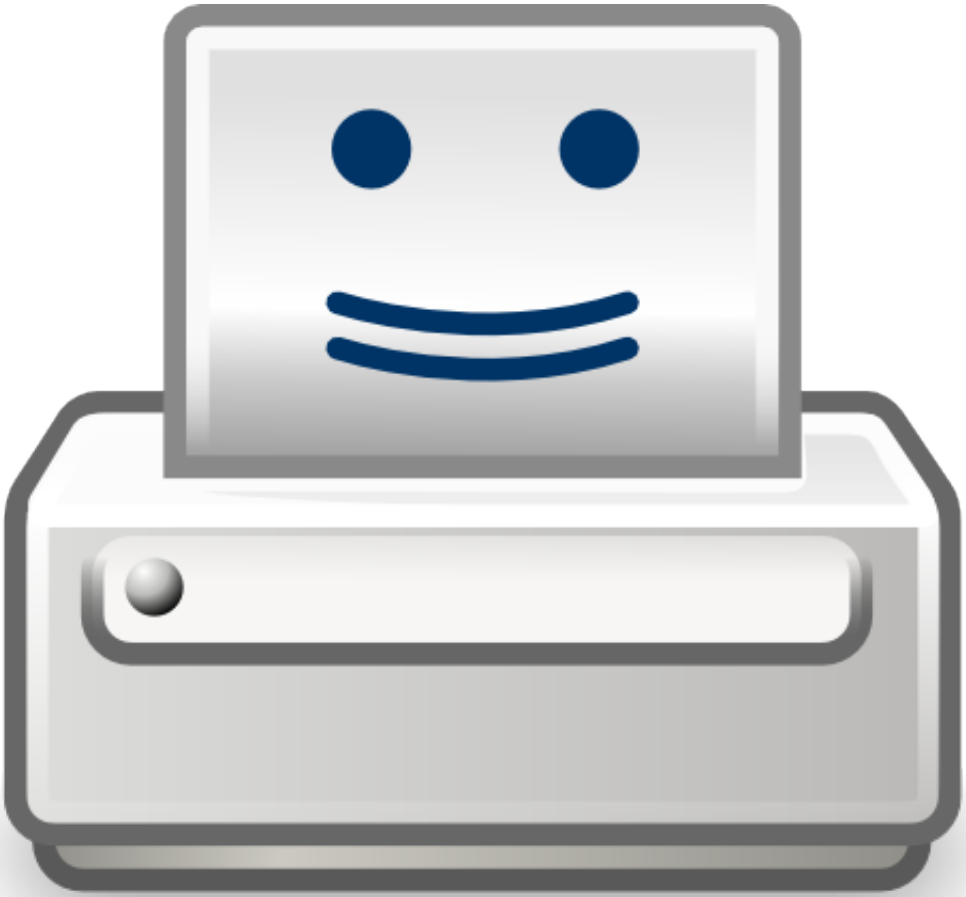
Faculty Tower 409

2010-09-02 02:00 PM

Christoph Noack

User Experience Project

This talk is about ...



New Printing UI

The Contents

- Printerpullpages? Printerpullpages!
- Gathering Requirements
- Doing Some Design
- The Result
- Final Thoughts

The Voice

Printerpullpages? Printerpullpages!

May 2009

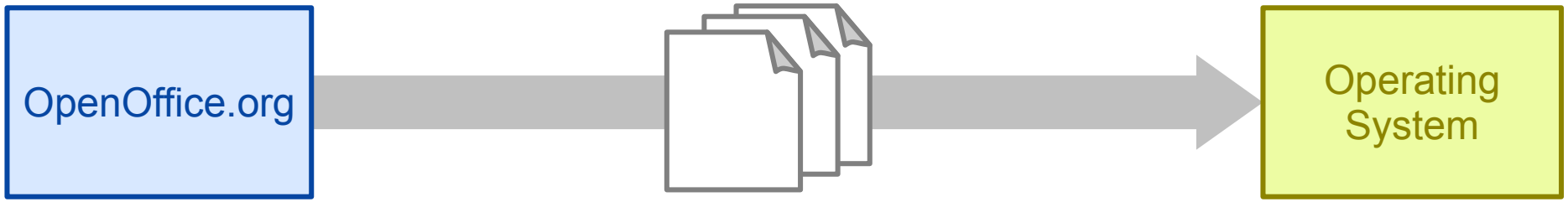
There is a new project called printerpullpages, do you want to have a look at the specification?
Question by Frank Loehmann

Sorry, I hardly have some time. But I do have some comments on what I've seen so far ...
My Answer

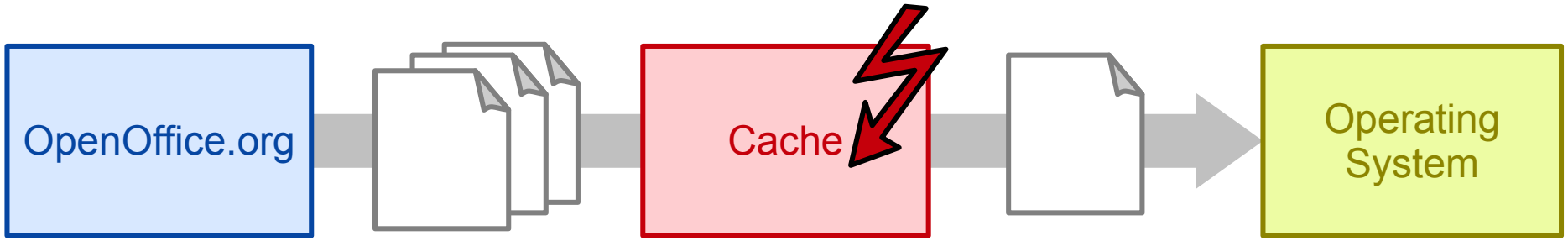
Then, the months passed by in the I-Team ...

OpenOffice.org 3.1 Printing on Different Platforms

Windows/Linux: All pages pushed to the system



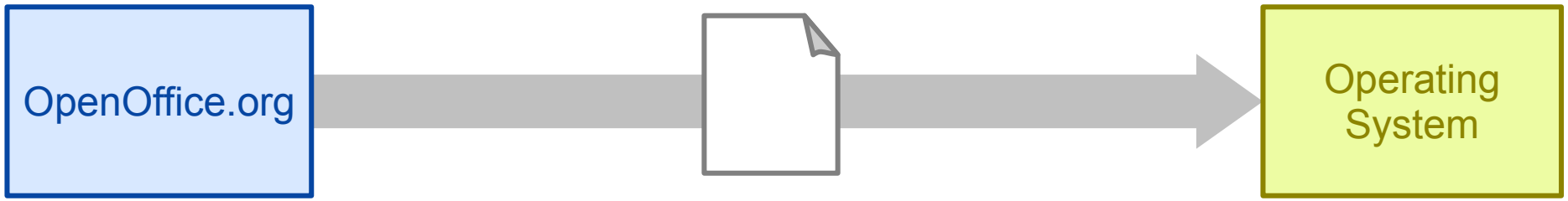
Macintosh: All pages cached, individual pages available



- The page count has to be known in advance
- Individual pages are required for the print page preview

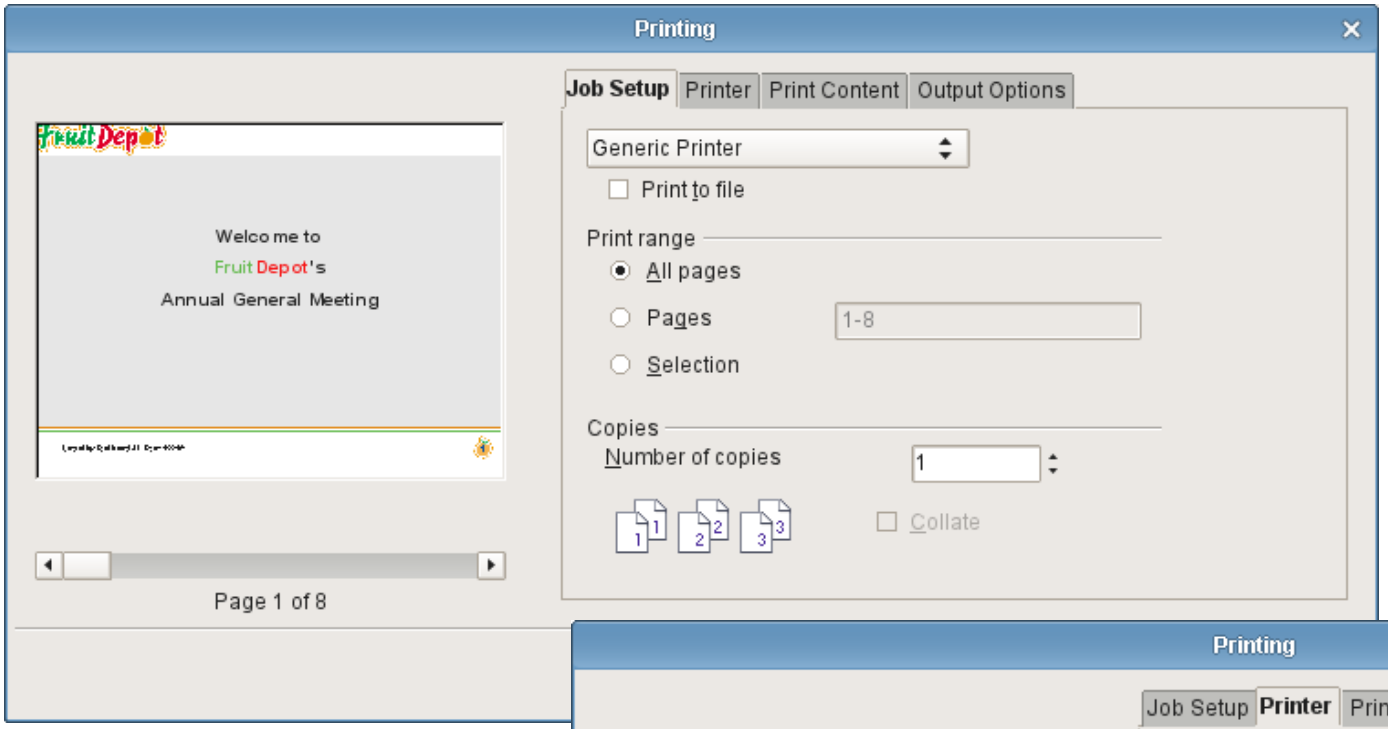
New OpenOffice.org Printing Sub-System

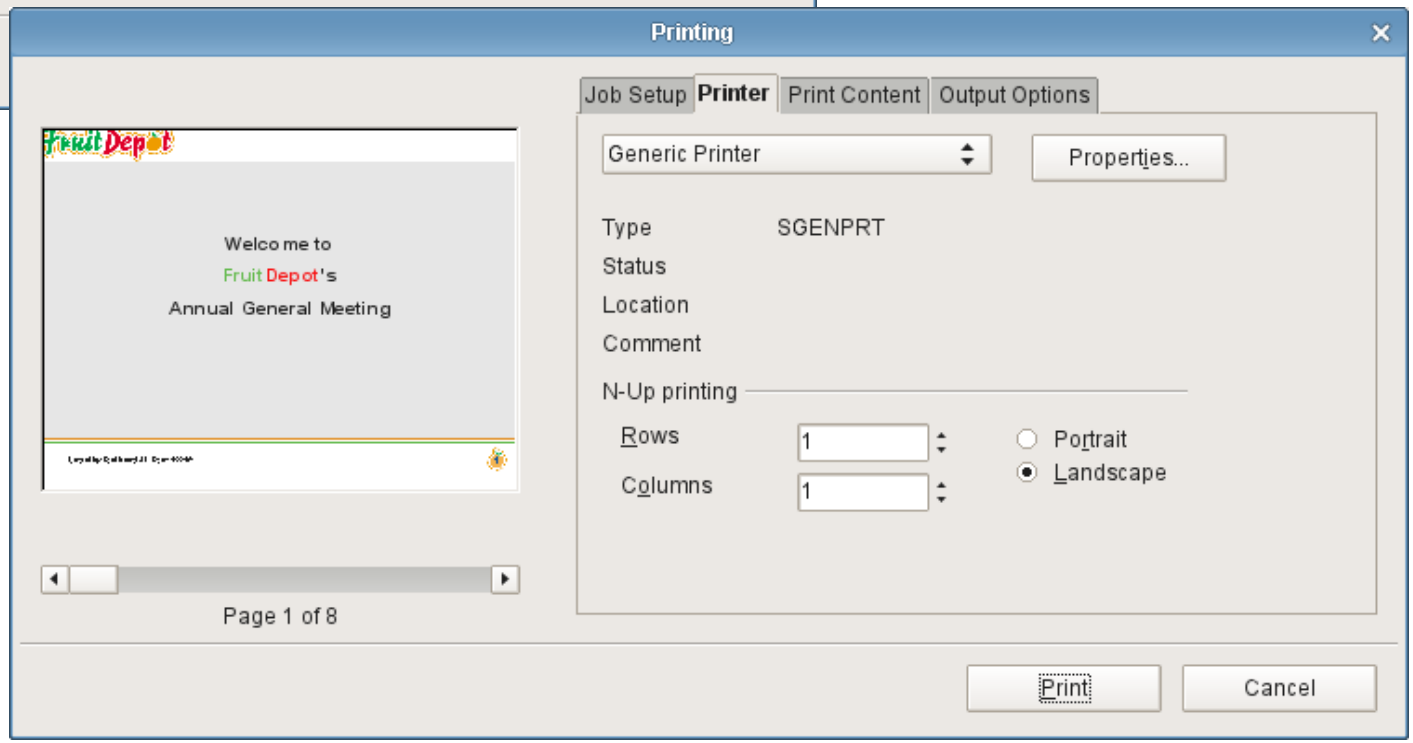
Individual pages available



- Reduced ressource needs on the Macintosh platform
- Easier connection to platform specific print dialogs
- Print preview can be provided for our own print dialog
- Multiple page printing can be realized

Result: Pages can be pulled → CWS Printerpullpages





Source: Specification
„New Print UI", 2010-05-11

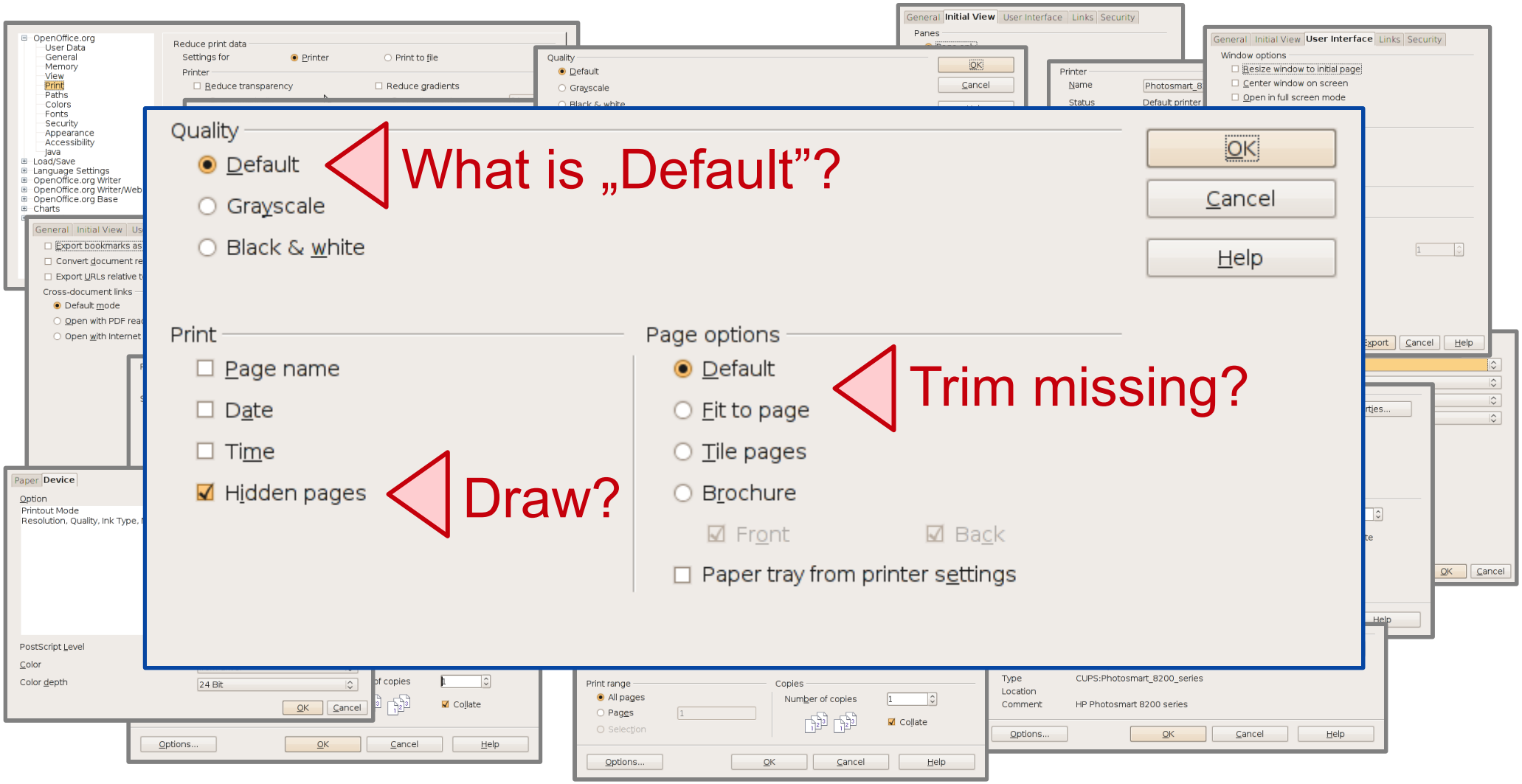
- Two Printer Selectors?
- Properties?
- Rows and Columns?
- ...

Gathering Requirements

Gathering Requirements

- Look at the competition
- Consume all platform human interface guidelines
- Go through our current dialogs
- Analyze selected workflows
- Investigate how our users do use printing
- Check how often functionality is used

Print Dialogs and Related Views

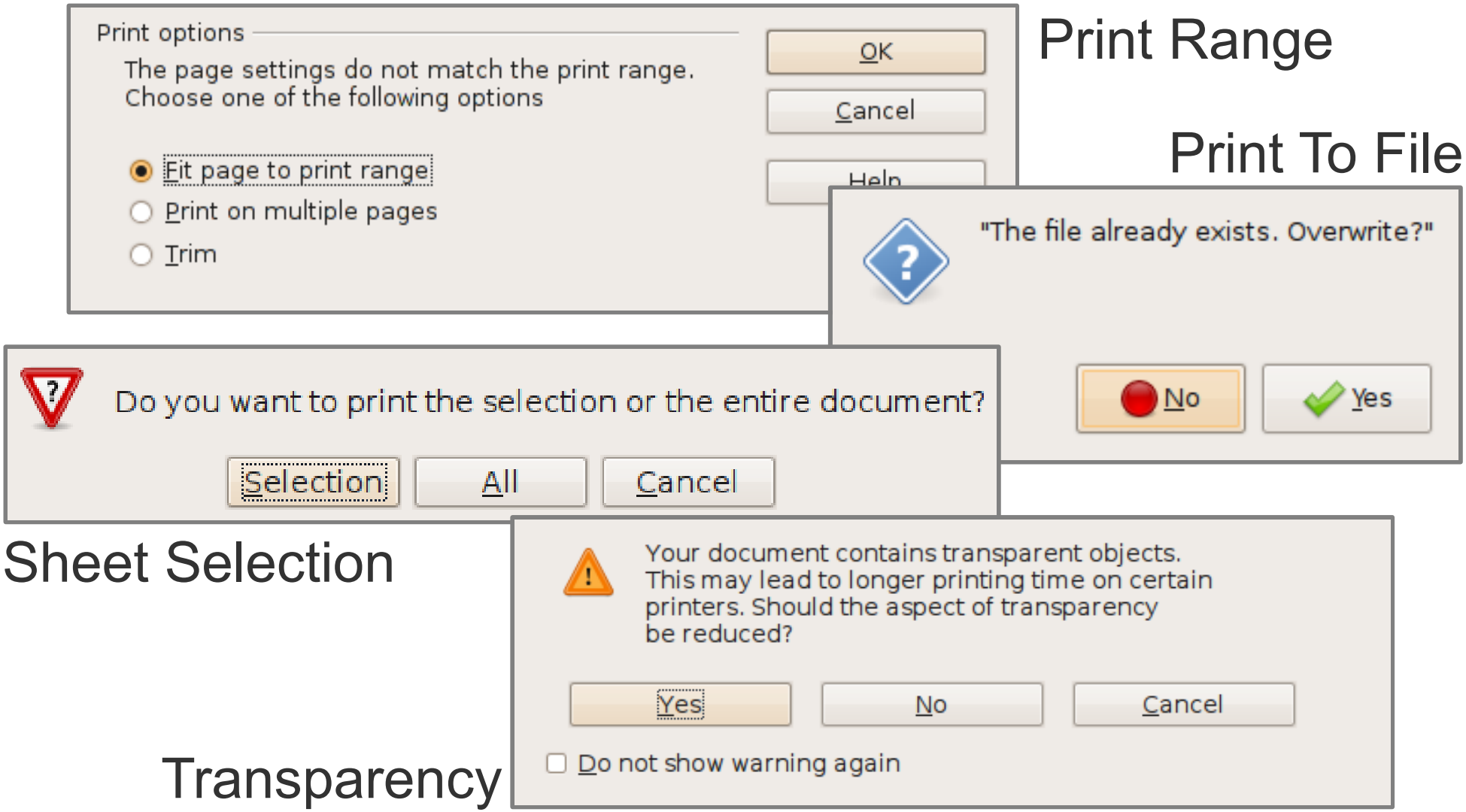


Workflow Analysis Example

User Prints a Poster in Draw

- Finding: Set page margins → First print range warning
- Finding: Select print → Page range warning
  - Persistant “true to scale” setting not available
  - Print range warning shown every time
- Note: Dfferent formulation "Fit page to print range" (dialog) vs. "Fit to page" (options)
- Note: No page range warning for “brochure” printing

Entertaining Dialogs



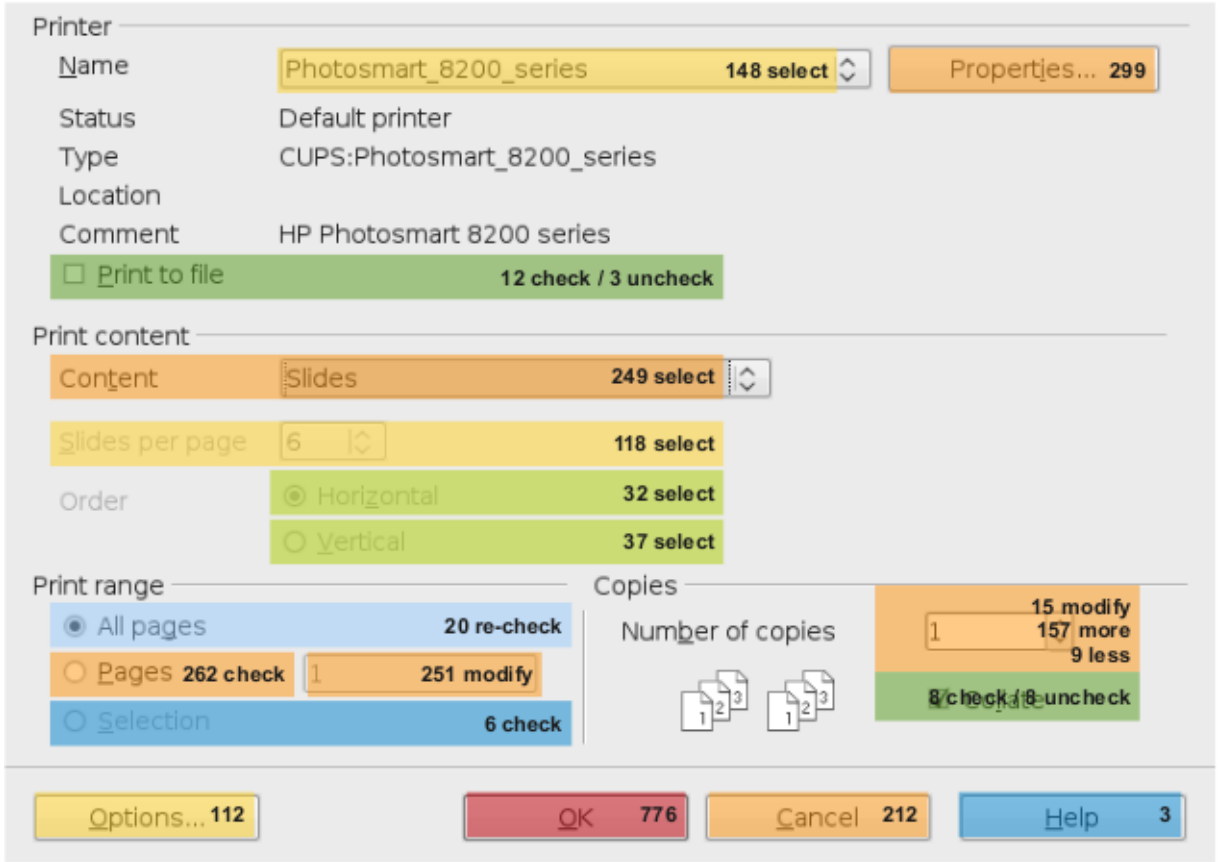
Print Range

Print To File

Sheet Selection

Transparency

User Feedback Data

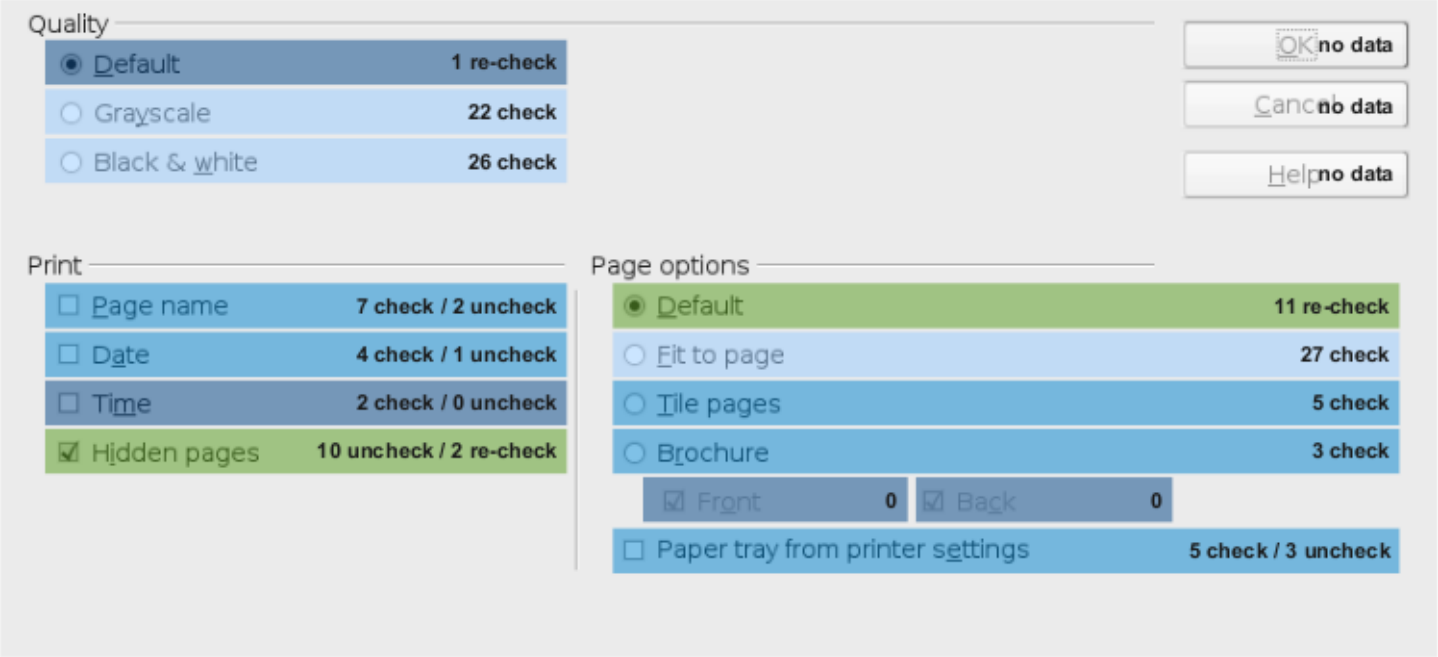


Print Dialog

- 30% use the „Properties”
- 20% cancel the dialog (!!!)
- 15% change the printer
- 0,015% change „Print to file”

Legend (not true to scale)

User Feedback Data



Print Options

- Some are rarely used → „Brochure Front/Back” never
- Few usage data available that time

Our Users and Printing

Problem: Real-world tasks have to be guessed when using user feedback data → User comments required

Approach: Questions sent to German user mailing list

Findings:

- There is no „the print job”: Each user has a small set of standard print options (but those vary between users)
- Interesting „creativity” how to get things done
- Linux Foundation OpenPrinting → Same result!

Findings for Printing in OpenOffice.org 3.0

Advantages

- It works and the printing system is very flexible ;-)
- Good separation between general and document print options
- Good separation between persistent and temporary print option changes

Disadvantages

- Sub-optimal workflows
- Some options rarely used (maybe never?)
- Inconsistent option names
- Too many modal dialogs
- Different styles for print (warning) dialogs

Summarizing all Available Information

List of all Print Dialog Elements

Row	A	B	C	D	E	F	G	H	I	J
2	Dialog Elements						Identifier			
3	Module	Dialog	Level	Name	Type	Specification / Other Sources	Source Code Name	UNO_URL	VCL	Document Settings
220	Writer	Options	3.4	End of page	Radio Button		?		TabDruckenWriter-Seitenende	(PrintAnnotationMode)
221	Writer	Options	4	Other	Section Header		?	(none)	(none)	
222	Writer	Options	4.1	Print automatically inserted blank pages	Checkbox	http://specs.openoffi	?		TabDruckenWriter-LeereSeitenDrucken	PrintEmptyPages
223	Writer	Options	4.2	Create single print jobs	Checkbox		?		TabDruckenWriter-EinzelneDruckauftraege	PrintSingleJobs
224	Writer	Options	4.3	Paper tray from printer settings	Checkbox		?		TabDruckenWriter-AusDruckereinstellung	PrintPaperFromSetup
225	Writer	Options	4.4	Fax	Drop-Down		?		TabDruckenWriter-Fax	PrintFaxName
226	Writer	Options	0.1	Help	Button		?		TabDruckenWriter	
227	Calc	Options	0	(none)	Tab Pane (?)		?		TabPrintCalcOptions	
228	Calc	Options	1	Pages	Section Header			(none)	(none)	
229	Calc	Options	1.1	Suppress output of empty pages	Checkbox		?		TabPrintCalcOptions-SuppressOutput	
230	Calc	Options	2	Sheets	Section Header			(none)	(none)	
231	Calc	Options	2.1	Print only selected sheets	Checkbox		?		TabPrintCalcOptions-PrintOnly	
232	Calc	Options	0.1	Help	Button		?		TabPrintCalcOptions	
233	Impress	Options	0	(none)	Tab Pane (?)		?		TabDruckenDraw	
234	Impress	Options	1	Quality	Section Header			(none)	(none)	
235	Impress	Options	1.1	Default	Radio Button		?		TabDruckenDraw-StandardAusgabe	(PrintQuality)
236	Impress	Options	1.2	Grayscale	Radio Button		?		TabDruckenDraw-Graustufen	(PrintQuality)
237	Impress	Options	1.3	Black & white	Radio Button		?		TabDruckenDraw-SchwarzWeiss	(PrintQuality)
238	Impress	Options	2	Print	Section Header			(none)	(none)	(PrintQuality)
239	Impress	Options	2.1	Page name	Checkbox		?		TabDruckenDraw-Seitenname	IsPrintPageName
240	Impress	Options	2.2	Date	Checkbox		?		TabDruckenDraw-Datum	IsPrintDate
241	Impress	Options	2.3	Time	Checkbox		?		TabDruckenDraw-Zeit	IsPrintTime
242	Impress	Options	2.4	Hidden pages	Checkbox		?		TabDruckenDraw-AusgeblendeteSeitenDrucken	IsPrintHiddenPages
243	Impress	Options	3	Page options	Section Header			(none)	(none)	
244	Impress	Options	3.1	Default	Radio Button		?		TabDruckenDraw-Standard	
245	Impress	Options	3.2	Fit to page	Radio Button		?		TabDruckenDraw-AufSeitengroesseAnpassen	IsPrintFitPage
246	Impress	Options	3.3	Tile pages	Radio Button		?		TabDruckenDraw-SeitenKacheln	IsPrintTilePage
247	Impress	Options	3.4	Brochure	Radio Button		?		TabDruckenDraw-Prospekt	IsPrintBooklet
248	Impress	Options	3.4.1	Front	Checkbox		?		TabDruckenDraw-Vorderseite	IsPrintBookletFront
249	Impress	Options	3.4.2	Back	Checkbox		?		TabDruckenDraw-Rückseite	IsPrintBookletBack
250	Impress	Options	3.5	Paper tray from printer settings	Checkbox		?		TabDruckenDraw-AusDruckereinstellung	
251	Impress	Options	0.1	Help	Button		?		TabDruckenDraw	
252	Impress	Options (?)	?	?	?		?		TabDruckenDraw-Handzettel	IsPrintHandout
253	Impress	Options (?)	?	?	?		?		TabDruckenDraw-Notizen	IsPrintNotes
254	Draw	Options	0	(none)	Tab Pane (?)		?		TabDruckenDraw	
255	Draw	Options	1	Quality	Section Header			(none)	(none)	(PrintQuality)
256	Draw	Options	1.1	Default	Radio Button		?		TabDruckenDraw-StandardAusgabe	(PrintQuality)
257	Draw	Options	1.2	Grayscale	Radio Button		?		TabDruckenDraw-Graustufen	(PrintQuality)
258	Draw	Options	1.3	Black & white	Radio Button		?		TabDruckenDraw-SchwarzWeiss	(PrintQuality)
259	Draw	Options	2	Print	Section Header			(none)	(none)	
260	Draw	Options	2.1	Page name	Checkbox		?		TabDruckenDraw-Seitenname	IsPrintPageName
261	Draw	Options	2.2	Date	Checkbox		?		TabDruckenDraw-Datum	IsPrintDate

Row	K	L	M	N	O	P	Q	R
2	User Feedback Data (Method, Count) [refer to Sheet Info]							
3	Simple Action	Modify	More / Check	Less / Uncheck	Comment	USD Analysis 1	USD Dialog Calls	USD Analysis 2
220	17	?	?	?			817	2,1
221	(none)	(none)	(none)	(none)				
222	?	?	19	76		4,00	817	11,6
223	?	?	53	25		2,12	817	9,5
224	?	?	62	29		2,14	817	11,1
225	125	?	?	?			817	15,3
226	35	?	?	?			817	4,3
227	103	0	0	0	SetPage		103	100,0
228	(none)	(none)	(none)	(none)				
229	0	0	7	57		8,14	103	62,1
230	(none)	(none)	(none)	(none)				
231	0	0	16	57		3,56	103	70,9
232	35	0	0	0			103	34,0
233	180	0	0	0	SetPage		180	100,0
234	(none)	(none)	(none)	(none)				
235	6	0	0	0			180	3,3
236	32	0	0	0			180	17,8
237	49	0	0	0			180	27,2
238	(none)	(none)	(none)	(none)				
239	0	0	16	6		2,67	180	12,2
240	0	0	5	2		2,50	180	3,9
241	0	0	2	0		Never used?	180	1,1
242	0	0	5	19		3,80	180	13,3
243	(none)	(none)	(none)	(none)				
244	19	0	0	0			180	10,6
245	59	0	0	0			180	32,8
246	14	0	0	0			180	7,8
247	14	0	0	0			180	7,8
248	0	0	0	0		Never used?	180	0,0
249	0	0	0	0		Never used?	180	0,0
250	0	0	9	5		1,80	180	7,8
251	2	0	0	0			180	1,1
252	0	0	0	0			180	0,0
253	0	0	1	1			180	1,1
254	38	0	0	0	SetPage		38	100,0
255	(none)	(none)	(none)	(none)				
256	1	0	0	0			38	2,6
257	4	0	0	0			38	10,5
258	5	0	0	0			38	13,2
259	(none)	(none)	(none)	(none)				
260	0	0	2	1		2,00	38	7,9
261	0	0	1	0		Never used?	38	2,6

Row	S	T	U	V	W	X
2	Christoph's workspace...					
3	Element	Name	Tags	Importance	Comments by christophnoack	...o, Writer Team (2009-06-08)
220	Keep	Rename	Content		"A bit short, how about „Collected at end of page" "New order of elements to be defined by Usage Feedback?	See above
221	-	-				
222	Keep	Rename?	Content, Page, Layout		"Is it really necessary for the user to select that manually, since it only appears to make sense for duplex printing? How about adding an automatic mode which depends on the local printer setting? "Ambiguous, since the blank pages seem to come from „nowhere". (Okay, one exception: the blank pages are already visible in print preview). Proposal: Something like „Automatically add blank pages for certain page breaks" "May this be harmonized with Calc „Suppress output of empty pages"?	Yes, it is. It depends on the duplex mode – printer supported or manual duplex. And no, it is not the same to suppress empty pages in Calc or to add some in Writer.
223	Remove?		Driver		Is that really necessary? At the moment, it only seems to affect duplex printing when the option „Collate" is enabled.	And how to get rid of it?
224	Remove?		Page, Driver, Layout, Paper		Is that really necessary, since this is also a option in the „page styles" which can be changed easily? It seems that it is only used to override the settings given in the document.	I'm not sure if the settings from the page styles are actually applied in all printers. Additionally it might make sense to discriminate draft and final prints.
225	Remove?		Driver		"If anybody really uses the direct fax option (which is strange, since the user has to manually add the „Send Default Fax" symbol to the main toolbar). "Should the use of this item be checked by the Usage Feedback?	It should be kept in tools/options. In the print dialog it doesn't make sense.
226						
227						
228	-	-			Why do we need a section header for one sub-entry?	
229	Keep	Rename?	Content, Page, Format		"May this be harmonized with (caption) of Writer „Print automatically inserted blank pages"?	
230	-	-			Why do we need a section header for one sub-entry?	
231	Remove?	Keep	Range, Content, Pages		Open Question: Is this a duplication of the Calc Print Dialog „Selected sheets"? Can it be removed?	
232						
233						
234	-	Rename?			Ambiguous, since „quality" is a bit generic. Here, only colores are affected. Proposed name: „Colors"	
235			Colors, Quality, Accessibility		Ambiguous, since the current term „Default" refers to „Original colors" in the help text. Does that refer the currently selected view quality (e.g. if the view quality is grayscale, does default refer to grayscale or original colors? It refers to original colors... Proposal: Name it either „Default (original colors)" or „Original colors".	
236	Keep	Keep	Colors, Quality, Accessibility			
237	Keep	Keep	Colors, Quality, Accessibility			
238	-	-				
239	Keep		Content		For Impress it is rather the slide name, since the the menu entry in the menu „Slide Show" is „Rename Slide". But since page and slide are mixed in both Impress and Draw this isn't a big issue at all...	
240	Keep		Content		"Is there any real reason to separate that from „Time"? Proposal: Combine it. "In the Impress menu „Insert– Date and Time..." the naming is combined.	
241	Change		Content		"Is there any real reason to separate that from „Date"? Proposal: Combine it. "In the Impress menu „Insert– Date and Time..." the naming is combined.	
242	Keep	Rename	Content, Page		Rename, since the the menu entry in the menu „Slide Show" is „Rename Slide". Pages are used in Draw, but there is no option to hide pages (refer to the corresponding entry in Draw).	
243	-	-				
244	Keep		Scaling, Format		"What does that mean? The help states „Specifies that you do not want to further scale pages when printing." But, when printing ImpressPageSize > PrinterPageSize a warning appears. Which has also different (!!!) options (e.g. option Trim is missing). "Proposal: The help should better state something like „Asks, if the drawing does not fit.."	
245	Keep	Rename?	Scaling, Format		Different to naming in dialog „Warning Print Options". There, it seems to be „Fit page to print range" (refer to description in „Page options, Default). Finally, there is even another page meant..	
246	Remove?		Scaling, Format		If the printer page is larger than the graphic page, then the graphic page is repeated until the printer page is filled. Example: If one A6 graphic page has been designed, it will automatically repeated 4 times for A4 paper format. According to Regina's request, this seems to be what is missing (for her) in Writer.	
247	Change		Scaling		In comparison to Writer, brochure printing is handled differently. Is that really necessary?	
248	Keep		Page, Layout			
249	Keep		Page, Layout			
250	Keep		Page, Driver, Format		Refer to Writer	
251						
252					Where does this element come from? Old (hidden) code?	
253					Where does this element come from? Old (hidden) code?	
254						
255	-	-			Refer to Impress	
256					Refer to Impress	
257					Refer to Impress	
258					Refer to Impress	
259	-	-			Refer to Impress	
260						
261					Refer to Impress	

Info | PrintDialogElements

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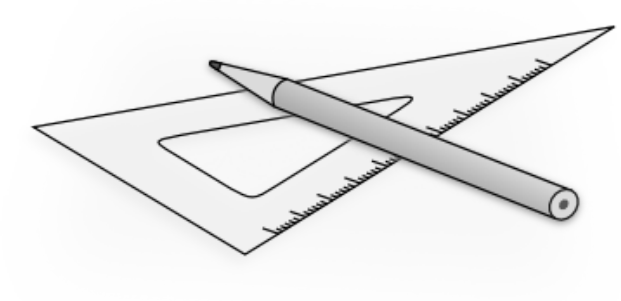
Summarizing all Available Information

The document contains for each element:

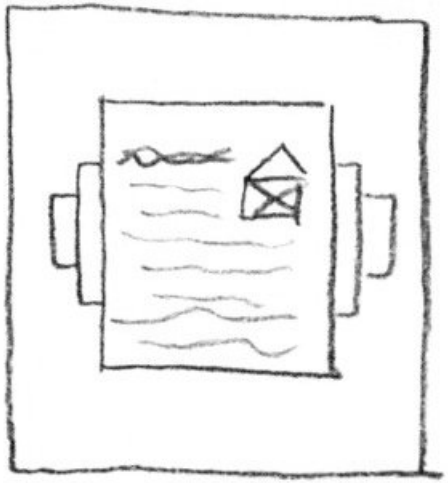
- GUI element type and location
- Identifiers (e.g. Document Settings, VCL, …)
- Reference to specifications or issues (e.g. Calc Printing Improvements)
- User feedback data and analysis
- New clustering
- Comments by the I-Team members



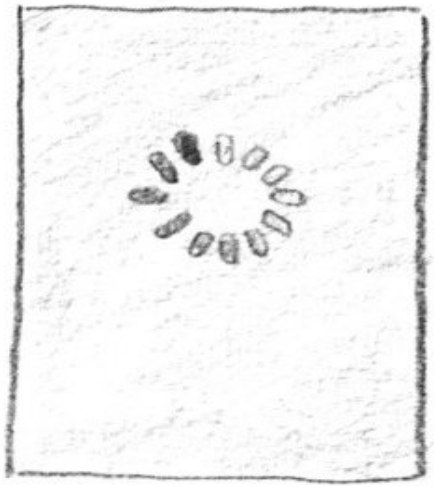
Doing Some Design

First Sketches

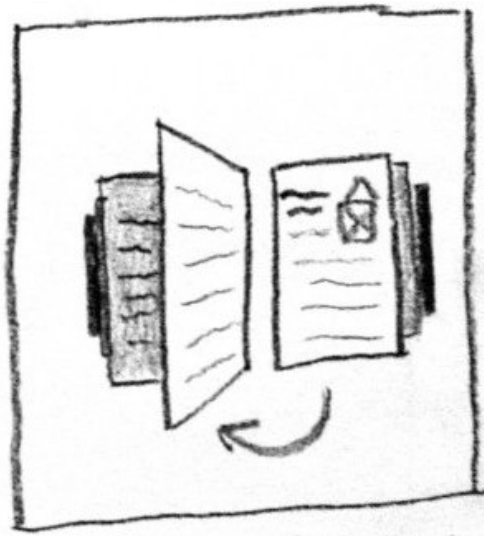
Print Preview



Single Side Printing



Work in Progress

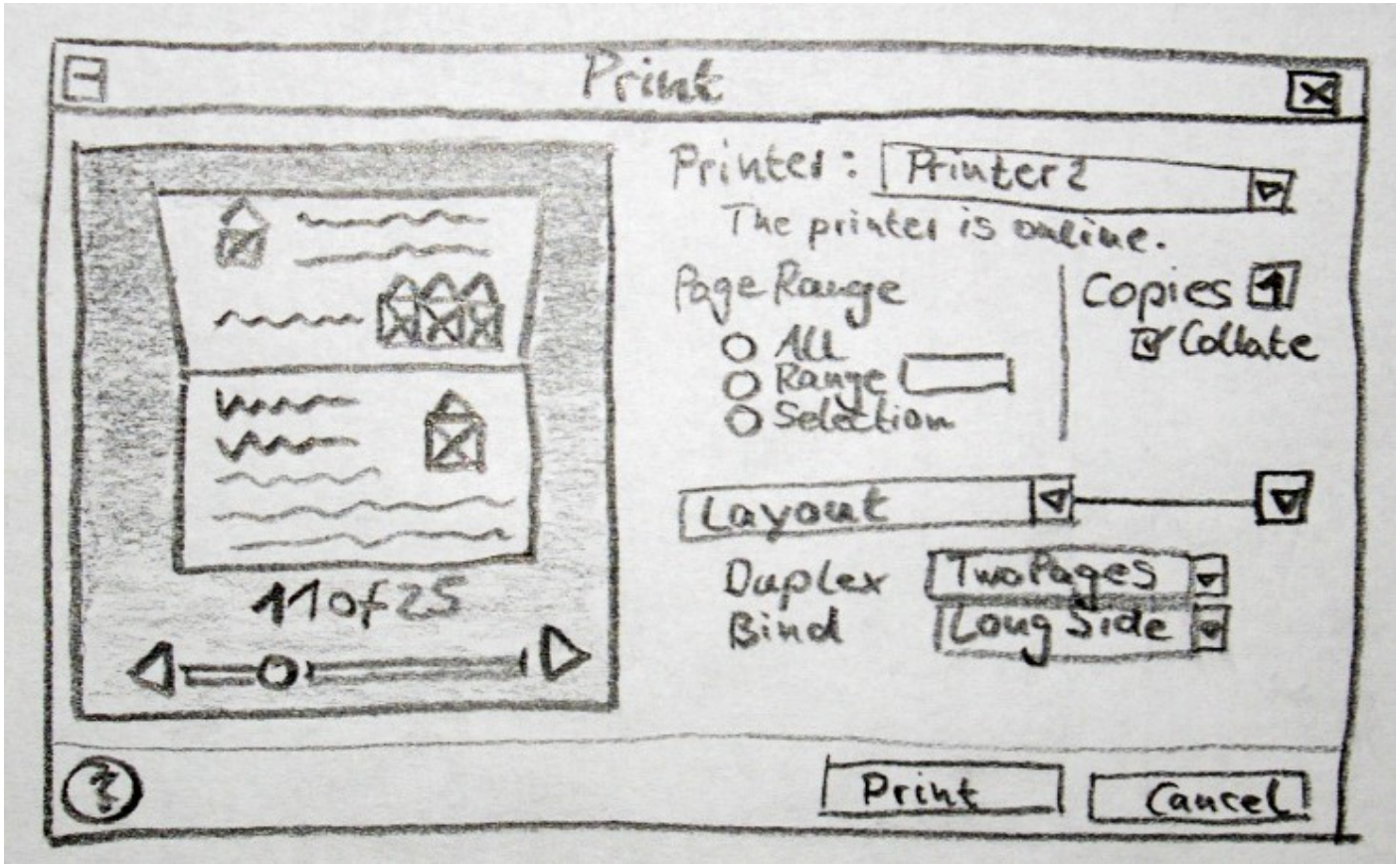


Duplex Printing

Empty Page Information

First Sketches

Print Preview Featuring „Real Page Layout”

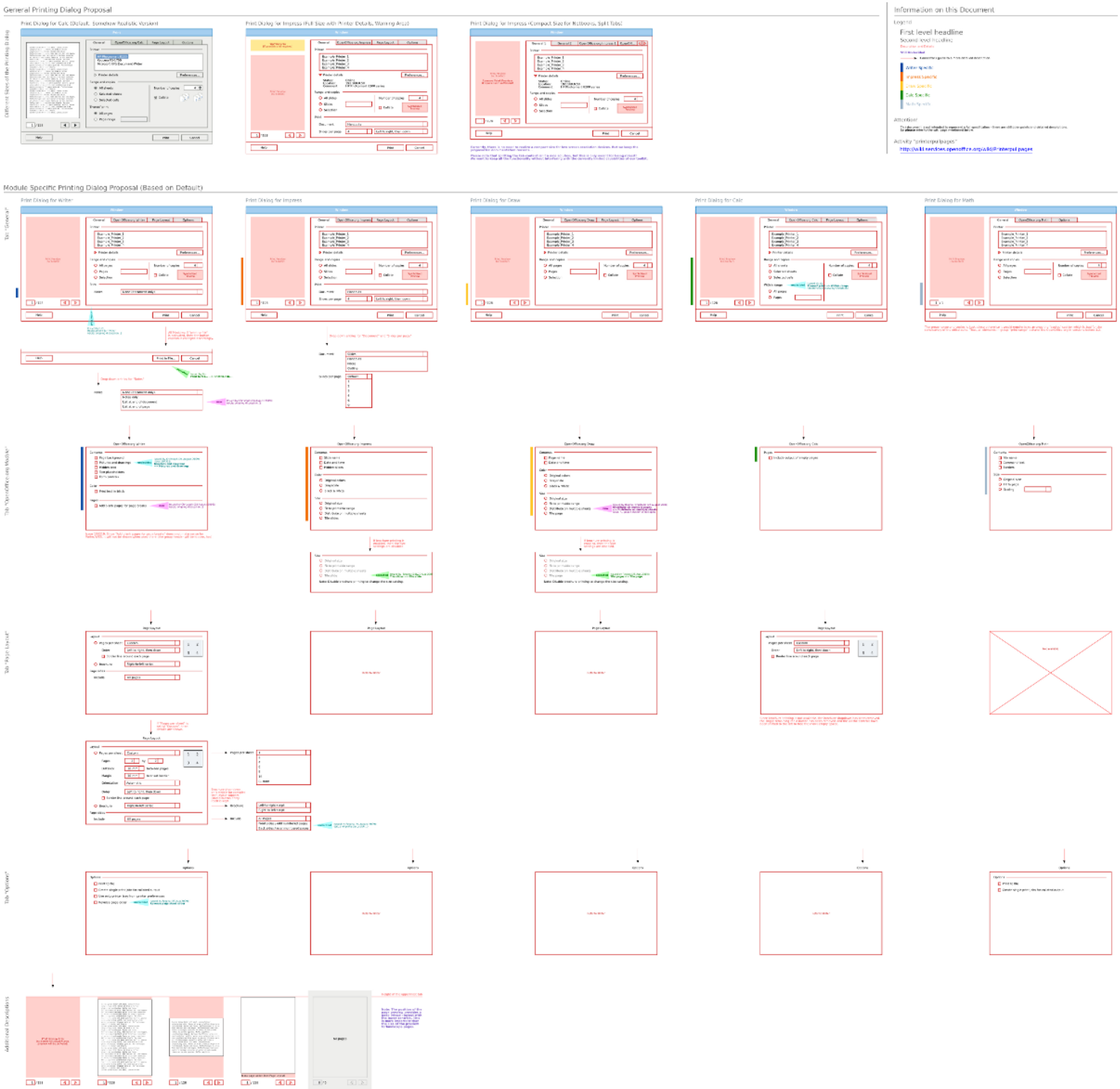


Constraints

- Netbook screen resolution → Dialog size limited
- Limited dialog layout capabilities
  → Resizing and dynamic layout to be avoided
- Macintosh automatic print options layout
  → Options are limited to one column
- Multiple Platforms → e.g. No standard printer settings dialog on Windows
- Discussions with all application owners
  → Different opinions on „What is important?”
- Limited implementation resources → Limit changes

Opportunities

- Let users feel at home → Macintosh native print dialog
- Help to evaluate the output → Print Preview
- Improve the workflows → e.g. Print Range in Draw
- Remove / merge functionality → Print „Tables” removed, „Date”/”Time” merged to „Date and Time”
- Rework the structure of print options
  → e.g. Contents, Color, Size
- Improve and harmonize all descriptions
  → e.g. „Right” to „Front sides / odd numbered pages”



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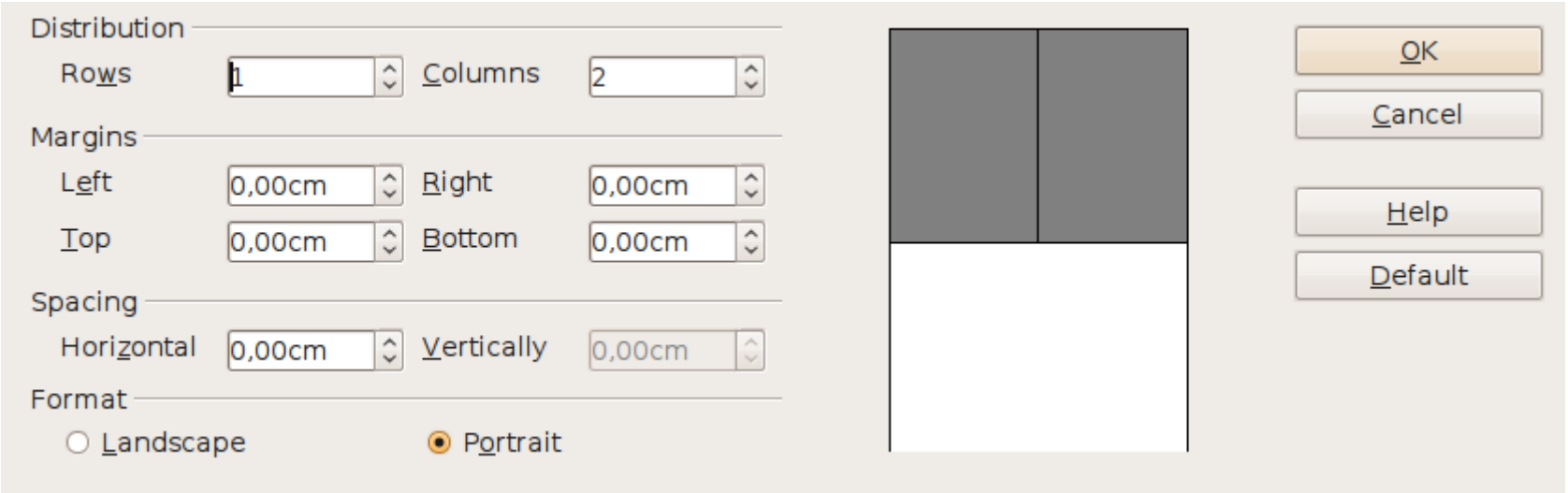
Mockup

- Behavior
- Structure
- Visual Design
- Special cases

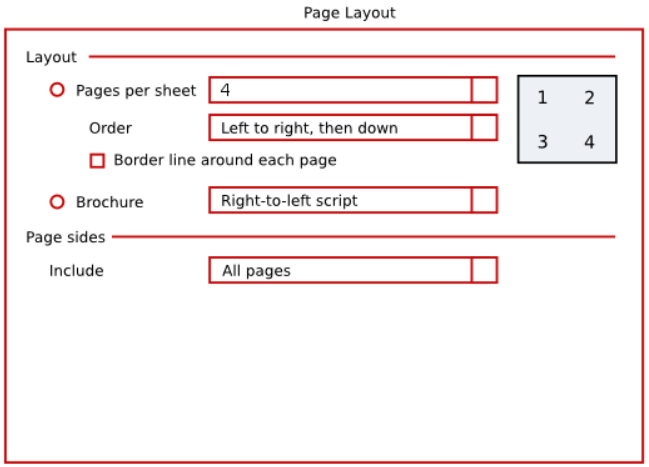
Example „Multiple Pages Per Sheet”

- Great demand by users for „Multiple Page Printing”
- Option unavailable or insufficient in most printer drivers
- „Print Page Preview” in Writer → Hidden, Complicated



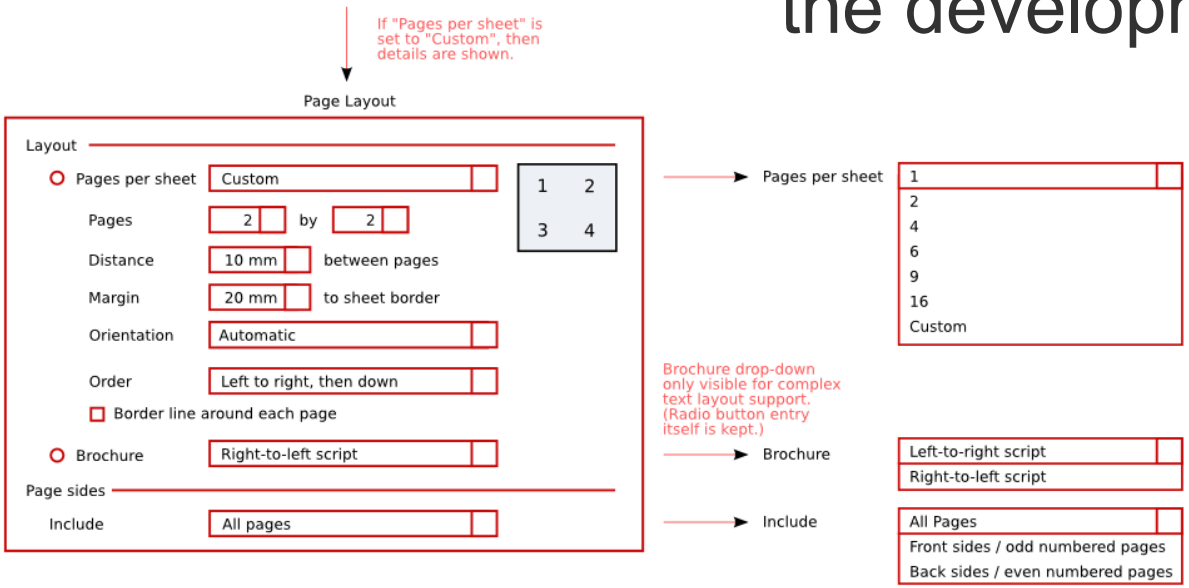
Page Preview Print Options in Writer

Example „Multiple Pages Per Sheet”



Just Works Approach

- Available for all modules
- Select number of pages
- Hardest work was to convince the development 🙂



Custom Layout

- Complete control
- Settings merged (e.g. margins)

The Result

Implementation for OpenOffice.org 3.3

Included

- It still works, maybe even better ;-)
- Improved OpenOffice.org Print Dialog
- Native Print Dialog for Macintosh

Missing

- Some questionable print options still available
- Document specific print settings don't behave well
- Handout master page not considered in Impress

Further Ideas

Print settings presets

Easy handling of printing options defaults

Harmonize printing and PDF export

Inform the user about the actual paper sheet size

Easy handling of printing options defaults

Inform the user if print range is "none"

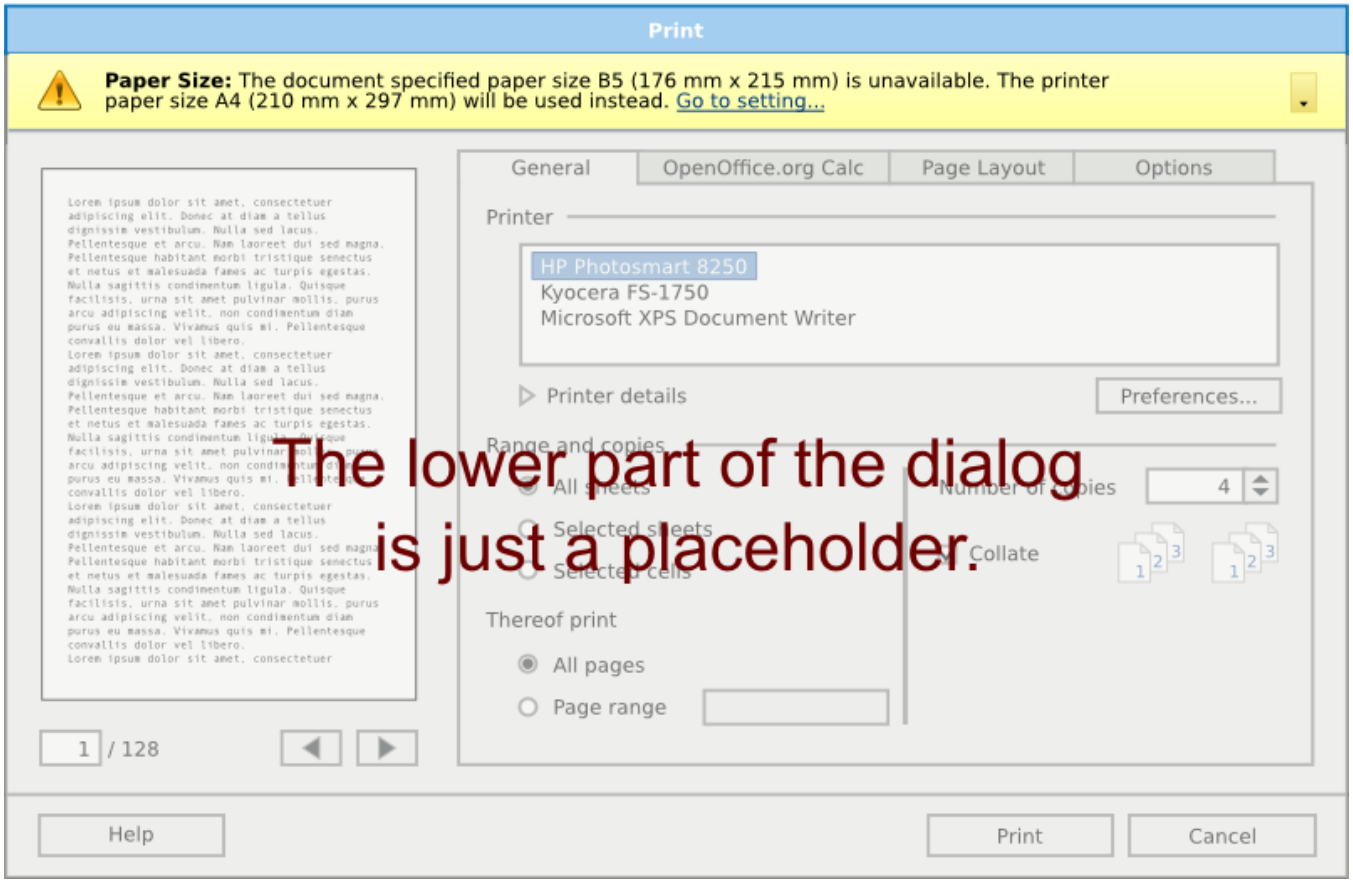
Merge change tracking and notes

Assistance for envelope printing

Provide watermark functionality

Contextual information

Contextual Information



- Idea: Check for problems → Inform the on demand
- Mockup is an early draft

Thank You Page

I-Team

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- Quality Assurance: Jörg Skottke, Hasan Ilter
- Documentation: Uwe Fischer
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Community: Regina Henschel, Elizabeth Matthis, The Germanophone Project, … and you!

Try it! And remember ...